



# PHYSICS

## BOOKS - VGS BRILLIANT PHYSICS (TELUGU ENGLISH)

AP MARCH - 2017

### Section A

1. What is the contribution of S. Chandra Sekhar to Physics ?



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2. How can systematic errors be minimised or eliminated?



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3. Two forces of magnitudes 3 units and 5 units act at  $60^\circ$  with each other. What is the magnitude of their resultant ?



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4. A batsman hits back a ball straight in the direction of the bowler without changing its initial speed of  $12 \text{ ms}^{-1}$ . If the mass of the ball is  $0.5 \text{ kg}$ ., determine the impulse imparted to the ball. (Assume linear motion of the ball)



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5. Why are drops and bubbles spherical?



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6. Define average pressure. Mention its unit and dimensional formula. Is it a scalar or a vector?



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7. Why gaps are left between rails on a railway track?



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**8. State Wein's displacement law**



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**9. Define mean free path.**



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**10. What is the expression between the pressure and kinetic energy of a gas molecule ?**



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## Section B

1. Two balls are projected from the same point in the direction  $30^\circ$  and  $60^\circ$  with respect to the horizontal. What is the ratio of their initial velocities if they (a) attain the same height (b) have the same range?



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2. Show that the trajectory of an object thrown at certain angle with the horizontal is a parabola .



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3. State Newton's second law of motion .

Hence , derive the equation of motion  $F = ma$  from it .



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4. Distinguish between centre of mass and centre of gravity .



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5. Define vector product. Explain the properties of a vector product with two examples.



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6. What is orbital velocity? Obtain an expression for it.



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7. In what way is the anomalous behaviour of water advantageous to aquatic animals ?



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1. Show that the motion of a simple pendulum is simple harmonic and hence derive an equation for its time period. Find the length of a simple pendulum which ticks seconds.

$$(g = 9.8ms^{-2})$$



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